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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
FLOURNOY, HORACE L	
ART UNIT	PAPER NUMBER
2189	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/03/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/807,094	DIMPSEY ET AL.	
	Examiner	Art Unit	
	Horace L. Flournoy	2189	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 December 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-28* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-6,9,11,13,14,16-22,24 and 26-28* is/are rejected.

7)☒ Claim(s) *7-8, 10, 12,15, 23, and 25* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *11/09/2006, 3/29/2007*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

This Office action has been issued in response to amendment filed January 14th 2007. Claims 1-28 are pending. Applicant's arguments have been carefully and respectfully considered, but they are not entirely persuasive, as will be discussed in more detail below. Accordingly, this action has been made FINAL.

ACKNOWLEDGEMENT OF REFERENCES CITED BY APPLICANT

As required by **M.P.E.P.** 609(c), the applicant's submission of the Information Disclosure Statements dated **11/09/2006** and **03/29/2007** are acknowledged by the examiner and the cited references have been considered in the examination of the claims now pending. As required by **M.P.E.P.** 609(c), a copy of the PTOL-1449 initialed and dated by the examiner is attached to the instant office action.

REJECTIONS BASED ON PRIOR ART

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-6, 9, 11, 13-14,16-22, 24 and 26-28 are rejected under 35 U.S.C. 102(e) as being anticipated by **Maxwell, III et al. (U.S. Patent Number 6,973,417 hereafter referred to as Maxwell).**

With respect to **independent claims 10 (and 1),**

> *"A method in a data processing system for generating coverage data during execution of code in the data processing system,* **[Maxwell discloses in the abstract, lines 1-5,"A method and system for simulating the execution of a software program on a simulated hardware system. An instrumented software program is divided into program segments delineated by tags and is then analyzed for data describing the program segments."]** *the method comprising: responsive to executing an instruction in the code by a processor in the data processing system,* **[Maxwell discloses in column 2, lines 24-26, "A target program is compiled into object code, and the object code is downloaded into a processor memory model within the hardware simulator."]** *determining whether an access indicator is associated with the instruction;* **[See FIG. 1, element 24: "Assembly Analyzer", See "data accesses" and all associated text within specification]** *and if the access indicator is associated with the instruction, changing, by the processor, a state of the access indicator when the instruction is executed,* **[disclosed, e.g. in column 5, line 54 – column 6, line 40. Column 6, lines 11-13 define the "numberOfInstructions" data type within the "assembly analyzer". The assembly analyzer varies per code segment]** *wherein coverage data is*

generated during execution of the code by the processor." **[disclosed by Maxwell, e.g. in column 6, lines 52-65.]**

With respect to **independent claims 15 (and 13),**

"A data processing system comprising: an instruction cache, **[See FIG. 2B, element 58, See all associated text within specification]** *wherein the instruction cache receives instructions and marks an instruction as executed in response to detecting a signal indicating that the instruction has been executed; and a processor unit,* **[Maxwell discloses in column 4, lines 6-10, "...the system further maintains an instruction cache image that keeps a record of the contents of an instruction cache of a simulated processor of the simulated hardware system. The system updates the instruction cache image after a program segment is executed."]** *wherein the processor unit generates the signal when the instruction has completed execution."* **[See FIG. 2B, element 50, See all associated text within specification]**

With respect to **independent claims 26 (and 17),**

"A computer program product in a computer recordable medium for generating coverage data during execution of code in the data processing system, **[disclosed in column 1, lines 33-34, "software program"]** *the computer program product comprising: first instructions, responsive to executing an instruction in the code by a processor in the data processing system, for determining whether an access indicator* **[See FIG. 1, element 24: "Assembly Analyzer", See "data accesses" and all associated text within specification]**

is associated with the instruction; and second instructions, if the access indicator is associated with the instruction, for changing, by the processor, a state of the access indicator when the instruction is executed, **[disclosed, e.g. in column 5, line 54 – column 6, line 40. Column 6, lines 11-13 define the "numberOfInstructions" data type within the "assembly analyzer". The assembly analyzer varies per code segment]** *wherein coverage data is generated during execution of the code by the processor, wherein executed instructions in the code have set access indicators set when the state of the access indicators associated with the executed instructions are changed* **[Maxwell discloses this limitation in column 5, lines 43-47.]**, *while unexecuted instructions have unset access indicators because the state of the unset access indicators remain unchanged."* **[Maxwell discloses this limitation in column 5, lines 55-67. "Number of data accesses" is an indicator that, at '0' represents an "unset access indicator".]**

Dependent Claims

With respect to **claims 2, 18, and 27,**

"The method of claim 1, wherein the changing step comprises: receiving a signal at an instruction cache in the processor from a processor unit in the processor; **[Maxwell discloses in column 4, lines 6-10, "...the system further maintains an instruction cache image that keeps a record of the contents of an instruction cache of a simulated processor of the simulated hardware system. The system updates the instruction cache image after a program segment is executed."]** *and responsive to receiving the signal, changing the*

state of the access indicator by the instruction cache." **[See FIG. 1, element 24: "Assembly Analyzer", See "data accesses" and all associated text within specification]**

With respect to **claims 3, 16, 19**

"The method of claim 2, wherein the processor unit is one of a completion buffer and a processor functional unit." **[Maxwell discloses in column 2, lines 21-23, "To achieve this degree of accuracy for a highly complex target processor, functions are often represented with detailed structures."]**

With respect to **claim 4,**

"The method of claim 1 further comprising: marking selected instructions in the code for generating the coverage data by associating access indicators with selected instructions in the code." **[See column 5, lines 54-67]**

With respect to **claims 5, 21, 28**

"The method of claim 1, wherein instructions in the instruction cache are located in different positions within the instruction cache **[See FIG. 2B, elements 80, 58 and 52. Maxwell teaches instructions located in different positions of the instruction cache (elements 80, 58, and 52).]** *and wherein the signal includes an identification of a position in the instruction cache for the instruction."* **[See FIG. 2B, element 50 and all associated text within specification]**

With respect to **claim 6,**

"The method of claim 1, wherein the access indicator is located in a field in the instruction." **[See column 5, lines 54-67]**

With respect to **claim 9,**

"The method of claim 1, wherein the access indicator is an instruction access indicator." **[See column 5, lines 54-67]**

With respect to **claims 11, 24**

"The method of claim 1, wherein access indicators are associated with every instruction within the code." **[See column 5, lines 54-67]**

With respect to **claims 14, 20, 22,**

"The data processing system of claim 13, wherein an instruction access indicator associated with the instruction is set to make the instruction as executed." **[See column 5, lines 54-67]**

REFERENCES CITED BY THE EXAMINER

United States PG Publication 2003/0135719 (DeWitt, JR. et al.) discloses in paragraph [0016] teachings that appear similar to the claim language of *claims 10 and 1* found in the instant application. Specifically, DeWitt teaches a "disposition indicator" which anticipates the applicant's access indicator and its claimed functionality. Each of the dependent claims previously indicated allowable appear to appear obvious in light of DeWitt.

Allowable Subject Matter

Claims 7-8,12, 23, and 25, are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

ARGUMENTS CONCERNING PRIOR ART REJECTIONS

1ST POINT OF ARGUMENT:

With respect to the arguments on page 7, of the applicant's remarks, the examiner notes that the "assembly analyzer" of Maxwell (access indicator. See Column 5, lines 40-67) is: 1) associated with an instruction, 2) changes states (tags), and 3) is controlled by the processor (column 5, lines 40-43). The

examiner notes that Maxwell anticipates the claim language of the independent claims.

Furthermore, with respect to claim 2, the assembly analyzer as well as the instruction cache, are both, ultimately controlled by the processor. With respect to claim 4, the access indicator (assembly analyzer) marks selected instructions in the code as taught in column 5, lines 54-67. The data produced by the assembly analyzer ***for each code segment*** is listed in column 5, lines 54-67. The examiner notes that the data is actually executed actions that are completed in the code, thereby anticipating the language of claim 4.

As per claim 5, the examiner notes that the identification of a position in the instruction cache is done via the offset as shown in FIG 2B. As broadly claimed, the examiner disagrees with the applicant's arguments regarding claims 6 and 7, citing the reasons stated above.

Independent claim 13 is argued by the examiner under that arguments stated supra.

CONCLUSION

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Direction of Future Correspondences

Any inquiry concerning this communication or earlier communication from the examiner should be directed to Horace L. Flournoy whose telephone number is (571) 272-2705. The examiner can normally be reached on Monday through Friday 8:00 AM to 5:30 PM (ET).

Important Note

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Reginald G. Bragdon can be reached on (571) 272-4204. The fax phone numbers for the organization where this application or proceeding is assigned is (703) 746-7239.

Information regarding the status of an Application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or PUBLIC PAIR. Status information for unpublished applications is available through Private Pair only. For more

information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571) 272-2100.

Reginald G. Bragdon

Reginald G. Bragdon

HLF
March 28th, 2007

Supervisory Patent Examiner
Technology Center 2100